

WHAT IS CLAIMED IS:

1. A circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment, comprising:

a memory for temporarily accumulating a low-order group signal,

a multiplexing circuit for multiplexing an output signal output by said memory with an overhead bit necessary for optical digital transmission, and

a pattern generation circuit for generating an unfixed pattern having no fixed value and outputting the pattern to said multiplexing circuit.

2. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 1, wherein

said unfixed pattern is applied to said multiplexing circuit while said memory outputs a fixed pattern.

3. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 1, further comprising

a selection circuit connected between said multiplexing circuit and said memory, wherein

between said fixed pattern output by said memory

and said unfixed pattern output by said pattern generation circuit, said selection circuit selects said unfixed pattern.

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4. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 3, further comprising a phase comparator for outputting a reset signal which resets said memory based on a phase difference between a phase of write to said memory and a phase of read from the memory, wherein said selection circuit selects said unfixed pattern based on said reset signal.

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5. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 3, further comprising a phase comparator for comparing a phase difference between a phase of write to said memory and a phase of read from the memory and when said phase difference is larger than a set value set in advance, outputting a reset signal which resets said memory, wherein

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said selection circuit selects said unfixed pattern based on said reset signal.

6. The circuit for preventing transmission of a

fixed pattern of an optical digital transmission
equipment according to claim 4, further comprising

a reset signal detection circuit for outputting a
switching signal based on a read address signal applied
to said memory from when said memory is reset until when
a signal first written into said memory is read from
said memory, wherein

said selection circuit selects said unfixed
pattern based on said reset signal and said switching
signal.

7. The circuit for preventing transmission of a
fixed pattern of an optical digital transmission
equipment according to claim 4, further comprising

a reset signal detection circuit for detecting
said reset signal, wherein

a read address signal applied to said memory is
also applied to said reset signal detection circuit,

said reset signal detection circuit outputs a
switching signal based on said read address signal from
when said memory is reset until when a signal first
written into said memory is read from said memory, and

said selection circuit selects said unfixed
pattern based on said reset signal and said switching
signal.

8. The circuit for preventing transmission of a

fixed pattern of an optical digital transmission
equipment according to claim 6, further comprising

a determination circuit and an OR circuit,

5 wherein

said determination circuit is provided between
said OR circuit and an input side of said memory,

said determination circuit outputs a switch
signal when a signal written into said memory has a
10 fixed pattern for a set time,

to said OR circuit, said switching signal and
said switch signal are applied, and

said selection circuit selects said unfixed
pattern based on said switch signal in addition to said
15 reset signal and said switching signal.

9. The circuit for preventing transmission of a
fixed pattern of an optical digital transmission
equipment according to claim 1, wherein

said unfixed pattern is a random pattern.

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10. A circuit for preventing transmission of a fixed
pattern of an optical digital transmission equipment,
comprising:

a memory for temporarily storing data,

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a multiplexing circuit for multiplexing a signal
output by said memory with an overhead bit necessary for
optical digital transmission,

a pattern generation circuit for generating an
unfixed pattern having no fixed value and outputting the
pattern to said multiplexing circuit,

an E/O conversion unit for converting a signal
output by said multiplexing circuit into an optical
signal,

an optical fiber for transmitting an optical
signal output by said E/O conversion unit, and

an O/E conversion unit for converting an optical
signal output by said optical fiber into an electric
signal, wherein

while said memory outputs a fixed pattern, the
unfixed pattern is applied to said multiplexing circuit.

11. The circuit for preventing transmission of a
fixed pattern of an optical digital transmission
equipment according to claim 10, wherein

said unfixed pattern is a random pattern.

12. The circuit for preventing transmission of a
fixed pattern of an optical digital transmission
equipment according to claim 10, further comprising

a selection circuit connected between said
multiplexing circuit and said memory, wherein

between said fixed pattern output by said memory
and said unfixed pattern output by said pattern
generation circuit, said selection circuit selects said

unfixed pattern.

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13. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 12, further comprising a phase comparator for outputting a reset signal which resets said memory based on a phase difference between a phase of write to said memory and a phase of read from the memory, wherein

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said selection circuit selects said unfixed pattern based on said reset signal.

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14. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 12, further comprising a phase comparator for comparing a phase difference between a phase of write to said memory and a phase of read from the memory and when said phase difference is larger than a set value set in advance, outputting a reset signal which resets said memory, wherein

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said selection circuit selects said unfixed pattern based on said reset signal.

15. The circuit for preventing transmission of a fixed pattern of an optical digital transmission equipment according to claim 13, further comprising

5 a reset signal detection circuit for outputting a
switching signal based on a read address signal applied
to said memory from when said memory is reset until when
a signal first written into said memory is read from
said memory, wherein

10 said selection circuit selects said unfixed
pattern based on said reset signal and said switching
signal.

16. The circuit for preventing transmission of a
fixed pattern of an optical digital transmission
equipment according to claim 13, further comprising

5 a reset signal detection circuit for detecting
said reset signal, wherein

a read address signal applied to said memory is
also applied to said reset signal detection circuit,

10 said reset signal detection circuit outputs a
switching signal based on said read address signal from
when said memory is reset until when a signal first
written into said memory is read from said memory, and

15 said selection circuit selects said unfixed
pattern based on said reset signal and said switching
signal.

17. The circuit for preventing transmission of a
fixed pattern of an optical digital transmission
equipment according to claim 15, further comprising

a determination circuit and an OR circuit,

5 wherein

said determination circuit is provided between
said OR circuit and an input side of said memory,

said determination circuit outputs a switch signal when a signal written into said memory has a

10 fixed pattern for a set time,

to said OR circuit, said switching signal and
said switch signal are applied, and

said selection circuit selects said unfixed pattern based on said switch signal in addition to said reset signal and said switching signal.

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